

**Stibnite Gold Project  
Environmental Impact Statement**

**Revised Stream Functional Assessment Methodology Report for the Stibnite Gold Project by Midas Gold & Demonstration of SFA Ledger to EPA on 7/24/2018**

**Dated August 6, 2018**

**EPA Review Comments**

**Note:** The Disposition and Response columns will be filled out by AECOM after addressing each Comment

	Page # or Global	Section	Paragraph	Comment	Commenter Initials	Disposition A/M/O	Response & Responder's Initials
	Global			Overall, we have questions regarding the parameters being utilized for the SFA methodology and parameters that appear to be lacking. We suggest parameters or measurements that sufficiently capture/calculate the functions and services of the functions and services to be impacted/ replaced (e.g., macroinvertebrates).	CMB/LAH		
	3	1.0	4	An SFA tools do not “quantify” the existing ecological function that can be gained from restoration activities. A functional assessment is designed to assess or measure the functions and services impacted and the functions and services to be replaced of aquatic resources within the project site/ impact area. Additional clarification should be noted regarding the difference between an assessment method and a credit/ debit ledger/ calculation method.	CMB		
	6	3.2	1	It is my understanding that baseline data/ information appears to be still missing and needs to be collected. Additional clarification on what data is missing and what data needs to be collected would be helpful. Additional clarification on what data was from the HDR 2016 report and what baseline data was from other collection efforts should be provided for a more complete understanding of the status of baseline environmental data.	CMB		
	7	3.2	6	Compensatory mitigation should occur prior to or concurrent with the impacts to aquatic resources.	CMB		
	41	4.4.7	8	Additional information and scientific rationale on how the stream area and habitat volume is being measured or assessed is needed. Were the abundance, diversity and complexity measured and included? In the Strahler's 1957 stream order calculation were intermittent and ephemeral streams included? If not, why not and how would this affect the calculation for the stream segment. What is the scientific rationale for not utilizing the new Stahler's stream order calculation as the newer tool may do a better job of incorporating minor drainages.	CMB		
	38	4.4.4	2	It appears that the functions and services of ephemeral streams and intermittent streams are not assessed as it is stated that the only quantifiable value by which ephemeral streams have been evaluated is the change in length. The 2008 Mitigation rule states that functions and services of aquatic resources which have been impacted must be replaced. Currently, this information is missing and/or has not been	CMB		

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				incorporated in a clear manner.			
	32	4.4.3.4.2	4	Additional information should be provided to support the scientific rationale for the current streambank condition measurement and performance standards. What is the rationale for utilizing the Pfankuch 1975 simplified streambank conditional assessment over a newer streambank condition assessment which may be more adequate to assess the functions and services of the streambank condition?	CMB		
	29	4.4.3.3.4	ALL	Is the off-channel habitat element in the USFS WCI? Additional information clarifying the origin of the parameters would be helpful.	CMB		
	14	5. Habitat elements WCI	ALL	For riparian vegetation, it would be helpful to include assessment/measurements of the following: buffer width, buffer density, buffer composition, buffer age, buffer growth, and canopy density.	CMB		
	15	6. Channel Conditions and Dynamics WCI	ALL	Have the following been accounted for: bank storage, widespread reaches, water overflow, stage versus discharge, bank migration/ lateral stability, bank height ratio, and channel evolution?	CMB		
	15	7. Flow and Hydrology WCI	ALL	Has the following been accounted for: bankfull velocity with stream type, stream power, gaining or losing, groundwater and surface water interaction, the hyporheic zone and the approximate direction of groundwater through the unsaturated zone (especially given the existence of the liners). With the existence of the liners, additional information should be provided to better understand the design criteria of the streams as it relates to the interaction with the groundwater/ hyporheic zone.	CMB		
	Global			It is unclear how parameters are assessed and performance standards are included for dissolved oxygen, temperature, and benthic macroinvertebrates. What baseline information has been collected thus far on these parameters and how will they be included in the calculations to assess functions and services impacted and replaced as they relate to functions and services of aquatic resources?	CMB		
	Appendix C			It is unclear why refugia and is not relevant in this evaluation and the scientific rationale provided in Appendix C does not appear to be adequate. It is relevant to assessing the functions and services of the aquatic resources being impacted and the functions and services to be replaced. The rationale for not including integration of species and habitat also does not appear to be adequate.	CMB		
	Global			Provide rationale for FAUs that were not sampled or assessed. Also, from conversations with Rios there may be additional information collected. Please provide information on any additional data collected.	CMB		
	Global	SFA		We acknowledge the challenges with developing a site specific SFA. The mitigation rule defines SFA as a tool. We note that Midas's SFA is based on an existing condition assessment index. While this may be a	TN/LAH		

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				useful tool for identifying conditions and a basis for calculating losses and gains, it is a stream condition assessment rather than a function assessment method. Functions are the processes that create and support a stream ecosystem. Condition assessments aim to estimate (physical, biological, chemical) status, changes and trends in a suite of indicators (snapshots of condition at the time of data collection). It may be helpful to clarify that it is a Stream Condition Assessment. We also provided feedback to the Corps regarding clarification of SFA vs stream condition (email dated 12/18/17)			
	Global	SFA		Ground water will not be able to penetrate the liner from below – what does this mean for baseflow? Sustaining riparian corridor? Hydrology? Water quantity? Stream function? Please provide summary information that may be included in other reports (i.e., hydro model) as it pertains to stream/wetland function/quality.	TN/LAH		
	Global	SFA		Stated goal is for streams to 'function naturally' but unclear that will be possible without inputs of baseflow.	TN		
	Global	SFA		Consultant says large trees will not be possible/planted (because of liner? Would disrupt liners?), so there may be impacts to robust function (large tree/cover, wood recruitment, etc). Provide information regarding the existence of shade and LWD.	TN/LAH		
	Global	SF		Proposed permanent fish passage barriers in design – what other biological, chemical, physical processes will be affected by the proposed barriers? Is the assessment method sensitive enough to detect these effects?	TN		
	Global	SFA Ledger		How do the modifications to the WCI used by Midas affect the outputs from the assessment method? Do the modifications preclude comparing the newly collected data to the data previously collected by USFS?	TN		
	Global	SFA Ledger		The drivers/objectives of Midas in developing the tool (sensitivity, repeatability, monitoring objectives—was it meant to assess full spectrum of condition? Weighted for USFS purposes? Limitations/assumptions?) should be clearly stated to inform interpretation of outputs.	TN/LAH		
	Global	SFA Ledger		Consultant makes clear that all data are qualitative – this should be transparent to inform data interpretation and use.	TN		
	Global	SFA Ledger		The QA/QC plan for data that have been collected should be made available.	TN		
	Global	SFA Ledger		Has the WCI ever been used to predict future condition? If not, what are the limitations of doing so now as proposed by Midas in using the tool predicatively?	TN		
	Global	SFA Ledger		Temporal lag in restoration accounted for?	TN		
	Global	SFA Ledger		Is the method meant to be only as assessment tool, or does it also have	TN		

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				accounting protocols embedded (i.e. calculation of 'debits' and 'credits')?			
	Global	SFA Ledger		It appears that the calculations in the ledger have embedded value-based assumptions (condition and values not calculated separately); these embedded assumptions of value (societal benefits) should be clearly stated as it is effectively an inherent weighting in the calculations. This will be important to interpretation of outputs.	TN		
	Global	SFA Ledger		Weighting is possible in running calculations/scenarios from the ledger—importantly, who will make the decisions on the weighting that is ultimately used for purposes of assessing impacts and proposed mitigation?	TN		
	Global	SFA Ledger		For streams on which data were not collected, there is a 'constant' input. We understand that additional data may be collected to fill in gaps. Provide information on what is being collected and what default parameters remain.	TN/LAH		
	Global	SFA Ledger		As we understand, this is one of many tools that may be necessary to evaluate overall project; how the different evaluation tools complement/supersede each other will be important to interpretation of results.	TN/LAH		
	Global	SFA Ledger		Consultant states that all intermittent and ephemeral streams have been lumped into the ephemeral category; there is no category for intermittent streams. We discussed during EPA/Rios meeting that if lumping designations occurs, Intermittent and ephemeral should be lumped as intermittent given the difference in CWA regulatory requirements. Additionally, Consultant says that pre-jurisdictional determinations have been conducted, and that all non-jurisdictional streams have already been excluded from the data being demonstrated. Therefore, ephemeral would not be included in the ledger (also see comment below).	TN/LAH		
	Global	SFA Ledger		Does this then mean that all ephemeral streams are already excluded from the ledger? If so, it is incorrect to categorize the remaining (assumedly) intermittent as ephemeral, as they are intermittent. To transparently capture this and inform interpretation of the outputs, the ephemeral category in the ledger should be deleted and replaced with an intermittent category to correctly categorize the intermittent streams it contains. Even if there are remaining ephemeral streams in the ledger, the ledger should reflect intermittent streams as a separate category, especially if the preponderance of streams included in the current "ephemeral" category are in fact intermittent.	TN		
	Global	SFA Ledger		Have the jurisdictional determinations been reviewed and finalized?	TN		
	Global	SFA Ledger		Consultant made clear that in the current graphic outputs from the ledger, only the baseline (-4) reflects actual qualitative data, all other outputs are predicted scenarios based on inputs (which is why weighting decisions in generating predictive scenarios must be transparent); recommend that this is clearly noted on the output graphics that are generated, such that all who view the graphic outputs clearly understand that those outputs are not data-based, but rather reflect many weighting decisions by the user who generated the outputs.	TN		

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